

10/02/03

10/524526**WALL OR DOOR ELEMENT, PROVIDED WITH CASTORS****DT01 Rec'd PCT/PT 10 FEB 2005**Description:

5 The invention relates to a wall element or door element
- element - having (lower) castors which can be moved
on floor runners which are designed as hollow bodies
with a slot running in the longitudinal direction, with
the runners being mounted in each case on an adjustable
10 castor carrier and the latter being connected to the
element.

Wall elements or door elements of this type are also
referred to as sliding walls or sliding doors. They
15 conventionally consist of a supporting frame which runs
all the way round and has hollow profiles,
predominantly made of aluminium. Castors are fitted to
the elements at the bottom and top. The lower castors
enter into a slot of a floor runner and can thus be
20 moved along the runner with lateral guidance being
ensured. A filling comprising panel elements is
conventionally connected to the frame.

In order to adapt the wall element or door element to
25 local structural stipulations, vertical adjustability
is provided. Since the castors always have to have
contact with the floor runners, the element can be
raised and lowered relative to the castors. For this
purpose, the castor carrier, which is preferably
30 designed as a pivotable lever, is adjustable. With the
elements closed on both sides, the castor carrier is
actuated from a narrow side of the element, namely is
pivoted in order to vertically adjust the element in
one or other direction.

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The invention is based on the object of improving wall
elements or door elements of the described type with
regard to the functionality, in particular of ensuring
that the castors are supported on the floor runners.

In order to achieve this object, the wall element or door element according to the invention and the (floor) castor carrier are characterized by the following features:

- a) a securing member is fitted in the region of at least one castor, the said securing member entering with anchoring ends into the runner and securing the element against lifting off,
- b) the securing member is mounted on an axis of rotation of the castor.

The wall element or door element according to the invention is secured against lifting off by the securing member as a result of being anchored in the hollow runner. The securing member is preferably designed as a tilting lever which is mounted pivotably on the axis of rotation of the castor and enters with anchoring ends into the runner in a form-fitting manner. In this case, the anchoring ends are designed as hook-shaped elements having thickened areas or hooking elements at the ends in the runner.

The mounting of the securing member (exclusively) on the axis of rotation of the castor means that the securing member is independent of any lifting movements of the element relative to the castor. As a result, the castor carrier, as connecting member between the castor and element, can be designed as a member which can be tilted in a vertical plane and which is actuated via a narrow side of the closed element by a suitable tool.

The securing member is constructed in a simple manner and consists, in particular, of plastic. The mounting of the securing member on the axis of rotation of the castor means that the castor unit can be produced in a simple manner and can be fitted in the conventional manner.

Further characteristic features of the invention will be explained in greater detail below with reference to the drawings, in which:

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Fig. 1 shows a lower sub-region of a wall element or door element in side view,

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Fig. 2 shows a detail II from Fig. 1 on an enlarged scale,

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Fig. 3 shows a castor unit together with the runner in a perspective illustration on an even more enlarged scale,

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Fig. 4 shows the castor unit according to Fig. 3 in side view,

Fig. 5 shows a vertical section through the castor unit according to Fig. 4 in the sectional plane V-V,

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Fig. 6 shows the castor unit with a vertical subsection and front view in the lower region.

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Fig. 1 shows a lower sub-region of a wall element or door element which has a frame 10 running all the way around. Covering panels 11 are fitted on both sides of the frame 10, with the result that the wall element or door element is closed on both sides.

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The wall element or door element can be moved by means of lower castors 12 on a runner 13, which is fitted on the floor. Two castors 12 are fitted to ends of a lower transverse strut 14 of the frame 10.

The runners 13, which are fixed on or in the floor, are designed as a hollow profile, namely with a lower flange 15 and two angled supporting profiles 16 which

form the actual runner. The supporting profiles 16 have mutually facing runner limbs 17. A central guide slot 18 is formed between the said runner limbs.

5 The castors 12 are profiled in coordination with the design and size of the runner 13. A central guide rim 19 running all the way around enters in a fitting manner into the guide slot 18 of the runner 13 and thus effects lateral guidance of the castors 12 and
10 therefore of the wall element or door element. Circular supporting surfaces formed on both sides of the guide rim 19 rest on the runner limbs 17 on both sides of the guide slot 18 and roll along said limbs. The castors are designed in a particular manner with regard to the
15 design of these supporting surfaces 20 or shoulders, namely with an inclination which slopes outwards in each case of the order of magnitude of (approximately) 5° . This slightly inclined design of the supporting surfaces 20 brings about an improvement in the running
20 characteristics of the castors 20, in particular in such a manner that unevenness in the runners 13 is compensated for.

Each castor 12 is connected to the element or to the
25 frame 10 via an adjustable securing means. This involves a castor carrier 21 which is designed, in the example shown, as a U-shaped supporting element, in particular made from correspondingly deformed sheet metal. The castor 12 is positioned between upright
30 supporting limbs 22. A transversely directed castor axle 23 connects the two supporting limbs 22 to each other. The castor 12 is mounted rotatably on the castor axle 23 by means of a ball bearing 24. In the present exemplary embodiment, a hub 25 extending between the
35 supporting limbs 22 is fitted on the castor axle 23. The ball bearing 24 runs on said hub.

The castor 12 is connected eccentrically, namely in the region of a lower, edge-side corner, to the castor

carrier 21. In the region of an opposite corner, the
castor carrier 21 is connected to the element or to the
transverse strut 14, specifically via an opening 26.
The castor carrier 21 can be adjusted about the castor
5 axle 23, by a pivoting movement in the present case.
The castor 12 always remains in the position bearing
against the runner 13. The pivoting movement of the
castor carrier 21 causes the door element or wall
element to be raised or lowered relative to the castor
10 12. In order to adjust the castor carrier 21, use is
made of an adjusting gear (not illustrated) which can
be actuated via a narrow side of the door element or
wall element, i.e. via an upright strut of the
frame 10.

15 The door element or wall element is equipped with a
permanent means of securing the castor 12 against
undesirably lifting off from the runner 13. Each castor
unit 27, which is formed from the castor 12 and castor
20 carrier 21, has an anchoring member or securing member
28. The said member is provided with anchoring members
or hooking members which enter into the runner 13 in a
form-fitting manner, but with a little play, and, by
being supported on the runner limbs 17, prevent the
25 castor 12 from being lifted off. In the present
exemplary embodiment, the securing member 28 comprises
a shaped element, in particular made of plastic,
comprising a lower web 29 and upright supporting
wall 30.

30 In the exemplary embodiment shown, the securing member
28 has (in side view) a triangular design. In an upper
region, the supporting walls 30 are connected centrally
to the castor unit 27, specifically to the castor axle
35 23. The securing member 28 is accordingly connected to
the castor carrier 21 exclusively via the castor axle
23. For this purpose, the securing member 28 has two
supporting walls 30 which are arranged at a distance
from each other, are positioned between the supporting

limbs 22 of the castor carrier 21 and are mounted on the hub 25 by means of a corresponding opening. For this purpose, the hub 25 is formed at its ends with a step, in the region of which the supporting walls 30 are mounted on the hub 25.

The castor 12 can accordingly be rotated freely irrespective of the position of the securing member 28. The securing member 28 acts in the manner of a rocker.

10 The anchoring members, which enter with a thickened area into the runner 13, are fitted at the ends, namely at the ends of the web 29. In the present exemplary embodiment, two securing hooks 31, 32 are provided in each case and are anchored in a form-fitting manner in

15 the runner 13 by means of hook-like projections 33. The projections 33 of the two securing hooks 31, 32 are directed to different sides.

This design of the castor unit 27 with securing member

20 28 ensures that the door element or wall element can be moved up and down without any effect on the position of the securing member 28.

Wall element or door element having castors

Patent claims:

- 5 1. Wall element or door element which can be moved by
means of (lower) castors (12) on floor runners
(13) which are designed as hollow bodies with a
slot running in the longitudinal direction, namely
a guide slot (18), with the castors (12) being
10 mounted in each case on a castor carrier (21) and
the wall element or door element being at least
partially adjustable relative to the castors (12),
namely being liftable and lowerable, characterized
by the following features:
15 a) a securing member (28) is arranged in the
region of at least one castor (12), the said
securing member entering with anchoring
members, in particular securing hooks (31, 32),
into the runner (13) and securing the castor
20 (12) against lifting off from the runner (13),
b) the securing member (28) is mounted
(exclusively) on an axis of rotation or castor
axle (23) of the castor (12).
- 25 2. Wall element or door element according to Claim 1,
characterized in that the castor (12) is mounted
rotatably on a central, fixed hub (25) and the
securing member (28) is mounted on the hub.
- 30 3. Wall element or door element according to Claim 1
or 2, characterized in that the securing member
(28) has two supporting walls (30) which are
formed at a distance from each other and are
mounted on both sides of the castor (12) on the
35 castor axle (23) or the hub (25).
4. Wall element or door element according to Claim 1
or one of the further claims, characterized in
that the securing member (28) forms a lower web

(29), with the securing hooks (31, 32) being fitted on both sides of the castor (12) to end regions of the web (29).

- 5 5. Wall element or door element according to Claim 1
or one of the further claims, characterized in
that the securing member (28) has a triangular
design with an upper, central corner region being
mounted on the castor axle (23) or on the hub
10 (25).
6. Wall element or door element according to Claim 1
or one of the further claims, characterized in
that the castor (12) is mounted on a castor
15 carrier (21) and the latter is connected movably,
in particular pivotably, to a frame (10), the
castor carrier (21) having two supporting limbs
(22) arranged at a distance from each other, and
the castor axle (23) extending between the
20 supporting limbs (22) in such a manner that the
castor (12) is mounted between the supporting
limbs (22).
7. Wall element or door element according to Claim 6
25 or one of the further claims, characterized in
that the securing member (28), in particular the
two webs (29) arranged at a distance from each
other, is/are mounted between the supporting limbs
(22) of the castor carrier (21).
- 30 8. Wall element or door element according to Claim 1
or one of the further claims, characterized in
that the castors (12) have a central guide rim
(19) running all the way around for entering them
35 into a guide slot (18) of the runner (13) and
supporting surfaces (20) resting on the runner
(13) on both sides of the guide rim (19), the
supporting surfaces (20) having an outwardly

directed, sloping inclination of (approximately)
5°.

List of reference numbers:

	10	Frame
5	11	Covering panel
	12	Castor
	13	Runner
	14	Transverse strut
	15	Flange
10	16	Supporting profile
	17	Runner limb
	18	Guide slot
	19	Guide rim
	20	Supporting surface
15	21	Castor carrier
	22	Supporting limb
	23	Castor axle
	24	Ball bearing
	25	Hub
20	26	Opening
	27	Castor unit
	28	Securing member
	29	Web
	30	Supporting wall
25	31	Securing hook
	32	Securing hook
	33	Projection

Abstract:

(in conjunction with Fig. 2)

A door element or wall element having lower castors (12) which are movable on a runner (13) is equipped in the region of the castors (12) with a securing member (28) which, by entry of securing hooks (31, 32) into the runner (13), prevents the castors (12) from undesirably lifting off from the runner (13). The securing member (28), which is designed as a simple plastic part, is mounted movably, namely rotatably, on a castor axle (23) of the castor.